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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/638,245	08/14/2000	Christopher M. Hanna	56233-139(THAT-3DVCN0	1379
23630	7590	10/31/2006	EXAMINER	
MCDERMOTT WILL & EMERY LLP ATTN: INTELLECTUAL PROPERTY DEPARTMENT 28 STATE STREET BOSTON, MA 02109			LEE, PING	
			ART UNIT	PAPER NUMBER
			2615	

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/638,245

Applicant(s)

HANNA, CHRISTOPHER M.

Examiner

Ping Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 7-9,49-114 is/are pending in the application.
- 4a) Of the above claim(s) 7-9,49-59 and 94-103 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 60-93 and 104-114 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of Group I claims 60-93 and 104-114 in the reply filed on 8/8/06 is acknowledged. The traversal is on the ground(s) that claim 111 can include decoders. This is not found persuasive because claim 60-93 can include decoders as well. Applicant also argued that claim 101 in Group IV does not refer to gain setting. Examiner would like to thank applicant to point out the mistake.

Therefore, claim 98 should be in one group and claims 101-103 should be in a separate group. Applicant further argued that claim 101 should be grouped with claim 111. This is not found persuasive because claim 101 does not require the detail of representing the difference between two stereophonic signals and claim 111 does not require the detail of modifies the electrical characteristics of one or more digital input signals.

Applicant also argued that claims 97 and 98 should be grouped together. This is not found persuasive because claim 98 does not require the detail of providing inverse square root values and claim 97 does not require the detail of storing the values and selecting and retrieving a particular stored value.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 94-103 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8/8/06.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 110 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 110, the phrase "the combined digital input signals" as specified on line 7 should not be the same as the phrase "the combined signal input signals" as specified on line 4 because the difference signal (as intended on line 7) is different from the sum signal (as intended on line 4).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 87, 107 and 108 are rejected under 35 U.S.C. 102(b) as being anticipated by Todd (US 5,357,284).

Regarding claims 87 and 107, Todd shows a digital BTSC encoder (211) and a digital composite modulator (212).

Regarding claim 108, the claimed carrier frequency is inherently included in the modulator performed under BTSC standard.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 60-86, 88-93 and 104-106 and 109-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as illustrated in Fig. 1 in view of Holt et al (US 4,803,727).

Regarding claims 82, 83, 86, 88, 89, 92, 104, 106 and 109-114, Fig. 1 illustrated a stereophonic encoder in accordance with the BTSC standard. However, Fig. 1 fails to show how to implement the encoder by using digital circuitry. Holt et al (hereafter Holt) teach that the analog band limiting filter would introduce noise to the signal and degrade the system performance (col. 1, lines 34-40). Although Holt discusses the system used in United Kingdom, the same effect of the analog band limiting filter would applied to the analog band limiting filter used in United States. Holt teaches that the analog signals are being converted to digital. The rest of the circuitry for providing the conditioned sum signal and for providing the conditioned difference signal processes the digital signals. In view of Fig. 1, one skilled in the art would modify the matrix (110) using a digital adder and subtractor, to modify the difference circuit using a digital difference circuit, and to modify the sum circuit using a digital sum circuit to process the digital input

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stereophonic signal to be further processed by digital band limiting filter. With a digital stereophonic input source, the input could be directly applied to the digital matrix. With analog stereophonic input source (claim 83), one skilled in the art would utilize any well-known ADC to convert the analog signal to digital input to be applied to the digital matrix. Thus, it would have been obvious to one of ordinary skill in the art to modify prior art as illustrated in Fig. 1 in view of Holt by implementing Fig. 1 using digital circuitry in order to eliminate the noise caused by the analog circuitry.

Regarding claim 84, the claimed  $75\ \mu\text{s}$  preemphasis is inherently included according to BTSC standard.

Regarding claim 85, prior art as shown in Fig. 1 shows an adaptive weighting system (134).

Regarding claims 93 and 105, the claimed carrier frequency is inherently included in the modulator as shown in Fig. 1 performed under BTSC standard.

Regarding claims 60, 63, 64, 67, 68, 69, 71-73, 76-81, the prior art as shown in Fig. 1 intends to use an analog modulator to combine the conditioned sum signal and the conditioned difference signal to generate the composite signal to transmission. The same analog modulator could be used even though the conditioned sum signal and the conditioned difference signal are in digital format. One skilled in the art would use DACs to convert the conditioned sum signal and the conditioned difference signal respectively before applying them to the modulator. On the other hand, the conditioned sum signal and the conditioned difference signal could be combined using well-known digital modulator before being converted to analog format for transmission. Either way,

they would generate the same composite broadcast signal. Thus, it would have been obvious to one of ordinary skill in the art to further modify the prior art as shown in Fig. 1 in view of Holt by utilizing well known DACs to convert the conditioned digital sum signal and the conditioned digital difference signal in order to use the analog modulator as intended to be used by the prior art as shown in Fig. 1 or using well-known digital modulator for combining the conditioned sum signal and the conditioned difference signal in order to use the analog transmission as intended to be used by the prior art as shown in Fig. 1.

Regarding claims 62, 66, 71, 75, the claimed "preselected sample rate" is inherently included in a digital signal.


Regarding claims 61, 65, 70, 74, 90 and 91, although Holt fails to show DSP, Holt suggests the digital circuitry for perform the calculation necessary to condition the sum and difference signals. The prior art as shown in Fig. 1 indicates that numerous calculations are required to condition the sum and differences signals. A DSP, as well known to those in the art, would be able to efficiently and rapidly perform the calculations on digitized signals that were originally analog in form. The big advantage of the DSP lies in the programmability of the processor, allowing parameters to be easily changed. Thus, it would have been obvious to one of ordinary skill in the art to modify the prior art as shown in Fig. 1 in view of Holt by using a DSP by programming the processor to perform the functions as required for conditioned the difference signal in order to efficiently and rapidly providing the conditioned difference signal.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522.

The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ping Lee  
Primary Examiner  
Art Unit 2615

pwl